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ABSTRACT

The proliferation of standards developed at the national and state levels makes preparing a meaningful classroom curriculum a daunting task. This book was designed for teachers who seek a model and processes for designing standards-based units of study to use in their own classrooms. Chapter 1 discusses the purpose of standards and defines content standards and student-performance standards. Chapter 2 offers guidelines for merging standards, local curriculum, and classroom practice. The third chapter describes the process for designing standards-based units of study. Sources of evidence to document student progress are discussed in chapter 4. The fifth chapter offers tips for selecting assessment criteria, scoring guides, and exemplars. Suggestions for communicating with students, parents, community members, colleagues, and administrators are set forth in chapter 6. The final chapter outlines steps and questions by which to guide the local process of setting and implementing standards. Appendices contain a sample case-study simulation, a curriculum-assessment form, characteristics of standards-based curriculum and assessment, a planning worksheet, and a student questionnaire. Twelve figures are included. (Contains 31 references.) (LMI)

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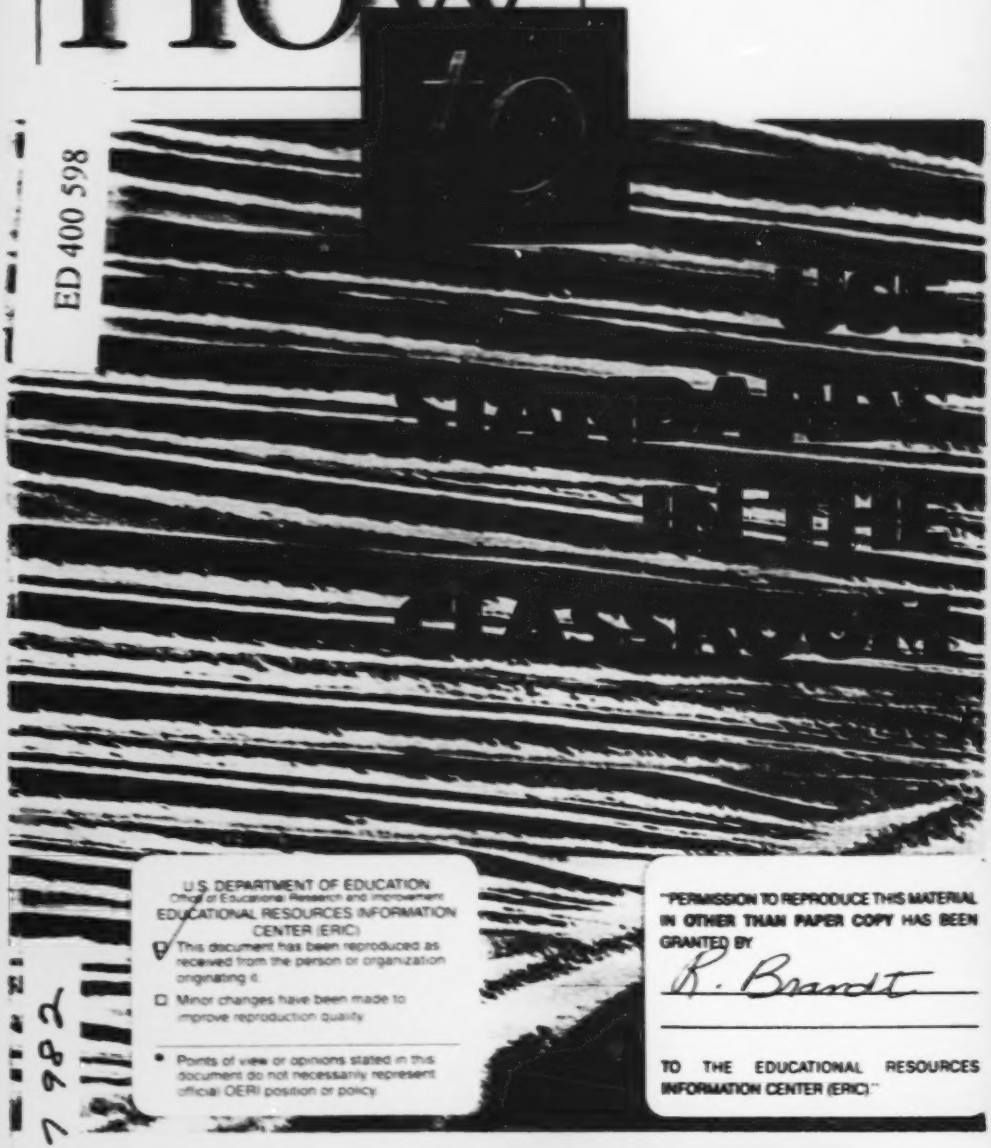

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DOUGLAS E. HARRIS AND JUDY E. CARR

WITH TIM FLYNN, MARGE PETIT, AND SUSAN RIGNEY

How to

USE STANDARDS IN THE CLASSROOM

Douglas E. Harris and Judy F. Carr
With Tim Flynn, Marge Petit, and Susan Rigney

Association for Supervision and Curriculum Development
Alexandria, Virginia

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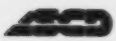

Association for Supervision and Curriculum Development
1250 N. Pitt Street • Alexandria, Virginia 22314-1453
Telephone: (800) 933-2723, or (703) 549-9110 • Fax: (703) 299-8631

Gene R. Carter, *Executive Director*
Michelle Terry, *Assistant Executive Director, Program Development*
Ronald S. Brandt, *Assistant Executive Director*
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How to Use Standards in the Classroom

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Douglas E. Harris and Judy F. Carr are Directors of the Center for Curriculum Renewal.

Doug Harris is also Director of Education, National Gardening Association. His address is 66 Grand Ave., Swanton, VT 05488. Tel: 802-868-5031. Fax: 802-868-5072. E-mail: dharrisnga@aol.com.

Judy Carr is also Director, Vermont Middle Grades Initiative, funded by the Carnegie Corp. of New York and the Vermont Department of Education. Phone and Fax: 802-899-4709. E-mail: jcarr1@aol.com.

Tim Flynn is Co-Director, Vermont Framework Project, Vermont Department of Education.

Marge Petit is Assessment Specialist, Vermont Institute for Science, Mathematics, and Technology.

Sue Rigney is Director of Portfolio Assessment, Kentucky Instructional Results Information System (KIRIS), Kentucky Department of Education.

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Introduction

Douglas Walker, Vermont's interim commissioner of education, recently accessed the home page of the Union Memorial School in Montpelier and found an invitation from Roger Crowley and his 4th grade students.

> Fourth Grade Problem-Solving Challenge: Select one of the problem-solving challenges from the "Fourth Grade Problem-Solving Challenges" area. Solve the problem and send the solution to us by e-mail. Our 4th grade students will use a modified Vermont assessment rubric to let you know how well we think you did.

The commissioner selected "Wanted: Jack-O-Lantern Carvers."

> Ellie's farm stand advertises 700 carved and lit pumpkins on display Halloween night. To prepare for this event they must carve all the pumpkins in three days (to prevent rotting). They claim that an experienced carver can complete a jack-o-lantern in 10 minutes. How many people must they hire to complete the job within the 3-day limit?

The commissioner solved the problem and sent this response:

> Interesting (and very practical) problem. I bet the folks at Settlement Farms on Route 2 in Middlesex have a similar challenge coming up!
>
> I tried a couple of different approaches. First, I tried to figure out the fewest number of carvers it would take to do the job. I came up with about 1.62 persons. So if these super-

human carvers worked around the clock for three days, it would take two carvers to do the job.

Then I tried to figure out a reasonable work day for an experienced carver. I figured they could carve about 10 hours a day. That would mean each carver could complete about 60 pumpkins a day for a three-day total of 180 pumpkins. At that pace it would take four people carving for three days to complete the needed 700 pumpkins. It would appear that if only three people were hired, they would have to work full speed for about 12.5 hours each day to get the job done. (We haven't factored in whether or not these workers are state employees who might need time off for a floating holiday.)

I hope I came close. Let me know how I did. I won't look at the rubric until I hear back from you.

Lauren Mears, a 4th grader, used a student-developed version of Vermont's mathematics scoring guide to assess the commissioner's work (Figure 1.1). After using the scoring guide, Lauren sent Commissioner Walker the following e-mail message:

Dear Mr. Walker:
Thank you for doing a problem. This one was kind of hard, but I'm glad you did it. Now, look at the rubric and follow along.

PS1: Your rating is 2. You only solved part of the problem. You needed to finish the part about the amount of time it took to light and display the pumpkins. If you wanted a Level 4 (that's the best) you should have put the information about the floating holiday into the problem and expanded the problem. Another idea for Level 4 is that they may have messed up some of the pumpkins as they carved them and had to throw them out and start over. It takes more time to do that. You could have figured something like that into the problem. I realize that you don't know much about the rubric so I will try to be more clear and help you understand.

PS2: Your solution is not ratable because I couldn't see how you solved the problem. I need to see your math. How do you get 1.62 persons? How did you get the 12.5 hours? Sounds like you worked pretty hard on it.

PS5: Your rating is a 2. You explained some of it, but I need to know your strategy.

FIGURE I.1
Math Portfolio Rubric

	Level 1	Level 2	Level 3	Level 4	Rating
PS1 Understand	I don't get it.	I can do part of it.	I totally understand.	Consider this first.	
PS2 How did you solve it?	It didn't work.	I got part of it my way.	It worked!	I solved it in a special way.	
PS3 Why that way?	I started, but stopped.	I explained some of it.	I need to explain better.	I clearly explained my solution.	
PS4 So what?	I solved it, but stopped.	I made some comments.	I showed you a real solution.	I made a rule (complicated).	
C1 Language	I didn't use math words.	I used basic math words, math ideas.	I used more than basic solutions.	I used sophisticated language.	
C2 Representation	I didn't use any graphs, charts, tables, models, diagrams, or drawings.	I attempted to use	I used math accurately.	I used sophisticated graphs and charts.	
C3 Presentation	Unclear response.	Some clear parts.	I need to fill in some details.	Response is organized and detailed.	

PS4: Your rating is 2. So what? How would you use this kind of math in real life? Most people don't get a good rating in this (like me) because they don't explain how to use this math in real life.

C1: Your rating is 2. You used basic math words.

C2: Your rating is 1. You didn't use graphs, charts, tables, models, diagrams, or drawings to solve the problem.

C3: Your rating is 2. You had some clear parts.

I can tell you worked a lot on this problem and your answer was very sophisticated. Try another problem or work on this one some more and I will "rubric" you again.

Good luck, Lauren

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This is a remarkable departure. First, there have never been any national standards. Second, there's never been any way to measure them. Third, there's never been any national skill standards for our workers. Fourth, we never thought we could do it with grassroots reforms. . . . But this is the beginning . . . Today we can say America is serious about education; America cares about the future of every child; America will lead the world in the 21st century. . . .

—President Clinton to the children of the Zamorano Fine Arts Academy Elementary School, San Diego, California, at the Goals 2000: Educate America Act signing ceremony, March 31, 1994.

1 National Standards and State Frameworks

How can you bring standards to life and reality in the classroom? The proliferation of standards developed at the national and state levels turns the preparation of a meaningful classroom curriculum into a daunting task. This guide is for teachers who seek a model and processes for designing standards-based units of study to use in their own classrooms. Consider the experiences of other educators as they have examined their teaching methods and incorporated standards into their classroom activities and units of study.

Scenario 1

In rural Vermont, five Essential Early Education mentors spend a week designing standards-based units of study with 100 colleagues who teach kindergarten through 12th grades. Early in their work the teachers express concern that standards conflict with their exploratory, experiential program. After using newly developed state standards to identify the desired results of their program, the teachers realize that exploration and experience are the how *of their program and that standards are the* what *and the* why. *The teachers end the week asking how to involve private preschool teachers in the conversation about standards and by recommending that individual education programs be designed around standards.*

In 1989 the National Governors Association called for the development of national standards for learning and teaching. In 1994, President

Clinton signed the Goals 2000: Educate America Act, calling for the following results in the United States by the year 2000:

- All children will start school ready to learn.
- 90 percent high-school graduation rate.
- All children competent in core subjects.
- First in the world in math and science.
- Every adult literate and able to compete in the workforce.
- Safe, disciplined, drug-free schools.
- Professional development for educators.
- Increased parental involvement in learning.

Scenario 2

Forty middle-grades teachers in South Carolina spend a week during the summer using state frameworks to build integrated teaching units. About mid-week, while struggling to design activities related to standards, one group has an important "ah-hah" moment and their team leader exclaims, "In the past, activities have been the means and the ends and we never really got anywhere. Now I see that standards are the ends and activities are the means we need to use to help students get there. This is really going to change my teaching."

Goal 3 of Goals 2000 states:

> All students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy.

Scenario 3

Suburban high-school students spend the first week of school using the state's newly adopted standards to build scoring guides that they will use to assess their work for the year.

Since the passage of Goals 2000, national professional groups, state departments of education, and school districts have been developing frameworks of content standards and student performance standards to clarify what, and how well, all students should learn.

Scenario 4

As one 2nd grader walks past a friend to turn in an assignment, the friend says, "I don't know why you're bothering to turn that in. It's not up to standard yet."

Given a model and processes for using standards in the classroom, the teachers with whom we have worked find that standards help (1) focus their curriculum, (2) refine work they have done in the past, (3) make expectations clear to students, and (4) improve student learning.

The Purpose of Standards

As Scenarios 1–4 illustrate, the effect of standards is being felt at many levels—state, district, school, and classroom—and by many constituencies (students, parents, and the community). Why are standards so important and effective as a tool for good learning? Because they express clear expectations for what all students, except perhaps for those with seriously disabling conditions, should know and be able to do. As adapted from the National Council of Teachers of Mathematics (1989), *all students* means

- Students who are female, as well as those who are male.
- Students who are African-American, Hispanic, American Indian, and members of other minorities, as well as those who are members of the racial and ethnic majority.
- Students who are socioeconomically disadvantaged, as well as those who are more advantaged.
- Students who have not been successful in school, as well as those who have been successful.
- Students who have been denied access to educational opportunities in any way, as well as those who have not.

Standards express what all students should know and be able to do while addressing the different needs of the school's constituencies.

Students. Standards set clear performance expectations for students, helping them understand what they need to do to meet the standards. Standards lead to improved student performance and promote more challenging, equitable, and rewarding experiences for all learners.

Teachers. Standards cause teachers to design curriculum, instruction, and assessment around what is important to learn. When teachers design standards-based curriculum and assessment, learning is intentional and more purposeful than in most other curriculums.

District and School. School innovations and programs for learning exemplify standards in action. For all districts and schools, standards provide a focus for developing new ways to organize curriculum content, instructional-delivery systems, and assessment plans.

Parents, Business People, and Community Leaders. Standards communicate shared expectations for learning and provide a common language for talking about the processes of learning and teaching. As a result, parents, business people, and community leaders become more effective partners in, and monitors of, young people's education. Standards allow people other than just the students to know and understand good learning and how the students are progressing in their education.

State. Standards are a common reference tool for ensuring that the components of the educational system work together. Standards make good learning evident from district to district and from school to school.

A Definition of Content Standards and Student Performance Standards

Content standards specify the essential knowledge, skills, and habits of mind that should be taught and learned in school. These standards are often set by local, state, and national groups.

Essential knowledge includes the most important and enduring ideas, issues, dilemmas, principles, and concepts from the disciplines. For example, each student should be able to:

- Identify major eras in history and analyze periods of transition in the local community, in Vermont, in the United States, and in various locales around the world.
- Demonstrate an understanding of the history and structures of the English language (sentence, paragraph, and text patterns).
- Demonstrate an understanding of the nature and function of cells, both as individual entities and as components of larger systems.

Skills are ways of thinking, working, communicating, and investigating, and each student should be able to:

- Use the scientific method to describe and explain natural phenomena.
- Use statistical methods and data collection to make interpretations, comparisons, and conclusions about technological, scientific, and other changes in society.

Habits of mind are essential both in and out of school. Habits of mind include studying, providing evidence for assertions, and developing productive, satisfying relationships with others. For example, each student should be able to:

- Assess own learning by developing rigorous criteria to use in producing consistently high-quality work.
- Demonstrate dependability, productivity, leadership, and integrity.

Student performance standards express the degree or quality of proficiency that students are expected to display in relation to the content standards. Student performance standards answer questions about quality and degree, whereas content standards define what students should know and be able to do. For example, if the content standard states "Students comprehend and respond to a range of media, images, and text for a variety of purposes," a performance standard might be "Students in kindergarten through 4th grade should read at least 25

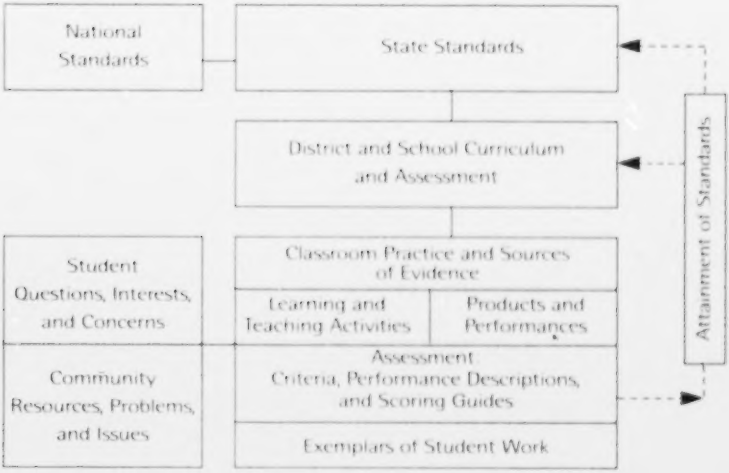
books each year, choosing quality materials from classic and modern children's literature and public discourse, or the equivalent in children's magazines, newspapers, textbooks, and media."

2 Merging Standards, Local Curriculum, and Classroom Practice

The relationship between standards, local curriculum, and classroom practice is demonstrated in Figure 2.1, a model that is both a conceptual tool for understanding this relationship and a planning tool for designing classroom curriculum and assessment. Figure 2.1 aims for congruent curriculum, instruction, and assessment based on standards. The planning process is satisfying because it helps create strong connections among state and district standards, instructional goals, and student work. In this model

- State frameworks reflect national standards.
- District and school curriculum and assessment reflect the standards found in state frameworks.
- Learning-teaching activities and instructional units reflect state standards and include district and school curriculum and assessment expectations while responding to student questions, interests, and concerns. The activities and units use community resources, problems, and issues as curriculum sources.
- Assessment at the classroom, district, and state levels is based on the products and performances generated through instructional units and provides clear information regarding student progress toward attaining standards.

FIGURE 2.1
Model for Congruent Curriculum, Instruction, and Assessment


National Standards
State Standards
District and School Curriculum and Assessment
Attainment of Standards
Student Questions, Interests, and Concerns
Classroom Practice and Sources of Evidence
Learning and Teaching Activities
Products and Performances
Community Resources, Problems, and Issues
Assessment Criteria, Performance Descriptions, and Scoring Guides
Exemplars of Student Work

The Planning Process

As a planning tool for classroom curriculum and assessment, the model (Figure 2.1) suggests the following steps to guide the design of standards-based curriculum and assessment. The order of the steps in developing and implementing learning experiences and units of study can be changed according to the situation and your needs and preferences. Before plugging in the information, identify a general topic of study.

Identifying a Topic or Essential Question. What topic or essential question is the focus of the unit? Is it based on student questions and interests (e.g., a study of the environment, collections, or the Wild West), on community resources (e.g., the Winooski River, the Riverton Mall, or Bunker Hill), on local curriculum expectations (e.g., the Civil War, weights and measures, or *The Scarlet Letter*), or on a topic or essential question suggested by the standards themselves (e.g., a study of probability, of change and constancy, or of a particular era in history)?

Selecting Standards. What standards from state frameworks are addressed and assessed through the unit of study? Are any local and national standards included? Are standards selected from one framework or discipline (a discipline-specific unit of study) or from several frameworks or disciplines (leading to an interdisciplinary unit)?

Using Local Curriculum Objectives. What local and district curriculum objectives relate to the standards selected and should be included?

Designing Learning and Teaching Activities. Select activities not just for their power in engaging students, but for their potential in stimulating and supporting learning in relation to standards. What learning and teaching activities are included in the study? What are the possibilities? What activities are most likely to enhance learning in relation to the standards selected? How will the unit begin and end?

Deciding on Products and Performances. What products and performances provide evidence of the learning and teaching activities? Can they document learning in relation to the standards selected for the unit? Do they accommodate a range of multiple intelligences and learning styles?

Defining Assessment Criteria. What criteria are necessary and sufficient to determine that learners have attained the standards addressed in the unit? Are all necessary aspects—categories of knowledge, skills, and habits of mind—clearly defined? Is the relationship to the identified standards direct and clear?

Writing Performance Descriptors. What does successful learning look like for each criterion identified? How can student work be used in making this determination?

Creating Scoring Guides. Through what means can students and others (e.g., parents) judge progress toward identified standards?

Collecting and Displaying Exemplars. What student products and performances might exemplify desired performance in relation to standards?

Example of the Planning Process

Based on Figure 2.1, Figure 2.2 is filled in to show congruence among standards; learning and teaching activities; student questions, interests, and concerns; and assessment.

The standards in Figure 2.2 define the learning-teaching activity, product and performance, assessment criteria, and performance descriptions. Adding a standard changes each component. For example, if you add the standard "Students use technology and media to express ideas and opinions," the activity requires the use of a multimedia program to explain the model or requires students to use a database program to present and graph data used in developing their model. A HyperCard stack or a database record and graph is an additional product, and you'd need to add criteria to the scoring guide—criteria specific to using technology to express ideas and opinions.

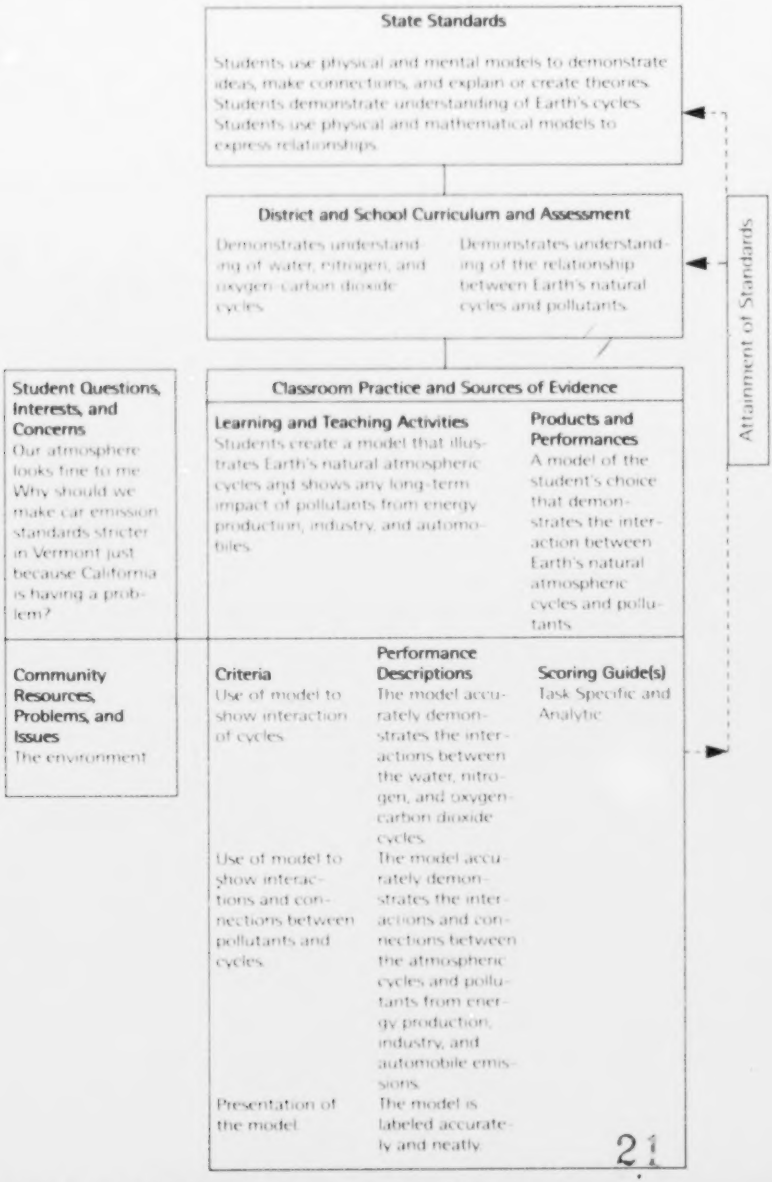
Try this relationship by selecting another standard from the list below and adding it to Figure 2.2. Then revise the learning-teaching activities, products and performances, assessment criteria, and performance descriptions to reflect the additional standard.

Sample Standards

- Students write effectively to analyze and contrast ideas and provide technical explanations.
- Students select and apply appropriate methods, tools, and strategies to seek, gather, and analyze information, draw conclusions, and make responsible decisions.
- Students identify systemic cause and effect relationships in social and environmental situations.
- Students express themselves with power and purpose through a variety of oral and visual expressions, including theater, dance and movement, arts, music, and discussion.

You might include standards related to democracy or civic participation, group dynamics, or ecosystems if your students ask "Why should we make car emission standards strict in Vermont just because California is having a problem?" To respond to multiple intelligences, include standards for the artistic dimension or group interaction.

FIGURE 2.2
Example of a Planning Tool for Congruent Curriculum, Instruction, and Assessment


State Standards
Students use physical and mental models to demonstrate ideas, make connections, and explain or create theories.
Students demonstrate understanding of Earth's cycles.
Students use physical and mathematical models to express relationships.
District and School Curriculum and Assessment
Demonstrates understanding of water, nitrogen, and oxygen–carbon dioxide cycles.
Demonstrates understanding of the relationship between Earth's natural cycles and pollutants.
Attainment of Standards
Student Questions, Interests, and Concerns
Our atmosphere looks fine to me. Why should we make car emission standards stricter in Vermont just because California is having a problem?
Classroom Practice and Sources of Evidence
Learning and Teaching Activities
Students create a model that illustrates Earth's natural atmospheric cycles and shows any long-term impact of pollutants from energy production, industry, and automobiles.
Products and Performances
A model of the student's choice that demonstrates the interaction between Earth's natural atmospheric cycles and pollutants.
Community Resources, Problems, and Issues
The environment
Criteria
Performance Descriptions
Scoring Guide(s)
Task Specific and Analytic
Use of model to show interaction of cycles.
The model accurately demonstrates the interactions between the water, nitrogen, and oxygen–carbon dioxide cycles.
Use of model to show interactions and connections between pollutants and cycles.
The model accurately demonstrates the interactions and connections between the atmospheric cycles and pollutants from energy production, industry, and automobile emissions.
Presentation of the model
The model is labeled accurately and neatly.

Source: M. Petit, Vermont Institute for Science, Mathematics, and Technology 1995.

FIGURE 2.3
Scoring Guide for Figure 2.2

	Just Getting Started	Not Yet	Got It!	WOW!
Knowledge of cycles.	The model does not accurately represent the water, nitrogen, and oxygen–carbon dioxide cycles.	Model accurately represents water, nitrogen, and oxygen–carbon dioxide cycles, but interactions between the cycles are not complete.	Model accurately and completely demonstrates the water, nitrogen, and oxygen–carbon dioxide cycles.	The model is used to explore each cycle independently.
Model shows interaction of cycles with pollutants.	The model does not accurately represent the interaction between pollutants and the natural cycles.	Model does not include or does not accurately represent the interactions between one or more sources of pollutants.	Model accurately demonstrates interactions of cycles with pollutants from energy production, industry, and automobiles.	Model is used to explore the result if different pollutants are removed (e.g., the impact of all energy companies using low sulfur coal).
Presentation of model.	The model does not have labels or titles, so the reader cannot identify the cycles.	There are gaps in the clarity of the model, missing labels or titles or the presentation is difficult to follow.	The model is labeled accurately and neatly and is presented in a readable manner.	

Getting Started

The development of standards-based curriculum is not a linear process. A commitment to standards-based curriculum does not mean all existing units of study must be scrapped, nor that all units must be designed from scratch. Instead, develop standards-based curriculum and assessment for the classroom from different starting points, including existing units of study; student questions, interests, and concerns; and standards from one or more state frameworks. Recognize the advantages and disadvantages of each approach (see Figure 2.4).

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There is no one best way to design standards-based curriculum, instruction, and assessment. We encourage you to try each approach and to vary your approaches while working toward standards-based curriculum and assessment. In Chapter 3 we present a process for designing learning and teaching activities and putting together standards-based units of study, a process you can modify and adapt to fit your needs.

FIGURE 2.4
Approaches to a Standards-Based Curriculum

Approach	Advantages	Disadvantages
Starting with existing units of study.	Allows you to use familiar materials while learning the skills of standards-based curriculum and assessment design.	It's hard to scrap favorite activities and assessments.
Starting with student questions, issues, and concerns.	Helps ensure relevance, enhance student interest, and motivate students to learn.	May conflict with prescribed district or school curriculum sequence. Students may not have enough knowledge to raise some essential questions.
Starting with standards.	Stimulates development of activities and assessments. Ensures focus on standards.	May overwhelm teachers if they perceive that all units of study must be new. May lack relevance to student questions, issues and concerns.

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3 Designing Topics and Activities

Imagine that your district has recently adopted standards for student learning or your state has just published standards for your subject area. As you open the standards documents, you wonder "How do I make these standards part of my curriculum? What do they mean to me and my students? How will I know if my students have attained the standards?" Designing standards-based units of study is a process of answering these questions while creating a meaningful and rigorous classroom curriculum.

What Are Standards-Based Units of Study?

Standards-based units of study explicitly focus on standards. Cumulatively, the units ensure that all students can demonstrate the knowledge and skills identified by the standards. Standards-based units are significantly different from activity-based units (see Figure 3.1). For example, standards-based units of study build a clear relationship among at least seven components.

1. Topic or essential question
2. The standards (taught and assessed within the unit)
3. Tasks and activities (designed to teach and demonstrate knowledge and skills)
4. Products and performances (the basis for assessment)
5. Criteria for assessment (based on standards)
6. Scoring guides (used to assess and communicate about student learning)

FIGURE 3.1
Comparing Activity-Based and Standards-Based Units of Study

Activity-Based Units	Standards-Based Units
Activities are the means and the ends.	Activities are the means and standards are the ends.
Activities are selected based on relationship to topic or essential question and fit with other unit activities.	Activities are selected based on their usefulness in helping students learn and demonstrate attainment of knowledge and skills in identified standards.
Assessment is based on expectations for particular products or performances (e.g., graph is properly labeled).	Assessment is based on criteria that is directly related to standards (e.g., knowledge of necessary content and concepts, or the ability to comprehend or to use specific steps in a problem-solving process).
Communication with students, parents, and other teachers about student progress tends to be about activities and expectations.	Communication with students, parents, and other teachers about student progress is based on standards.

7. Exemplars (collected over time to clarify expectations for student learning and aid in evaluating and revising the unit).

The process of designing a unit of study is relational and recursive: Each of the seven components relate to and directly reflect the other components. Designing the unit involves revisiting decisions at each step. For example, once standards are identified to focus the unit of study and activities are selected, those activities may suggest the need for other standards.

Like other units of study, standards-based units can vary in duration (e.g., two days, one week, three weeks, or nine weeks). Typically, a shorter amount of time means fewer standards can be addressed and assessed. A focus on standards does not need to limit the possible ways

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of organizing a unit of study. Standards-based units of study can be discipline-specific, multidisciplinary, interdisciplinary, or integrated.

Designing Standards-Based Units of Study

Use the following series of steps and examples to help design standards-based units. Once you have worked your way through these steps, feel free to vary the order.

Step 1: Identify a Unit Topic or Essential Question

The topic or essential question of the unit is the organizing element for tying together standards and activities. The list of possible topics and essential questions is unlimited. In general, the best unit topics and essential questions address several standards simultaneously and interest the students. To be usable a topic should (Callahan and Clark 1988)

- Center around some major understanding, problem, issue, question, or theme.
- Serve to organize several standards and focus the study.
- Be relevant to students' lives and to their society.
- Be manageable, not too difficult, nor too demanding of time or resources.
- Be suitable to your students' ages, abilities, and interests.

Valid sources of unit topics include students' questions, interests, and needs; community resources; local curriculum; and the standards themselves.

Using Students' Questions, Interests, and Needs. Students of all ages have questions about themselves, their communities, and their world (Beane 1990). Bringing those questions to the surface, identifying commonalities, and basing units of study on these themes is one method of engaging and motivating students. A questionnaire can help you collect student questions (see Appendix E).

Students in Highgate, Vermont, generated the following questions and thoughts about the environment:

- How can I clean up the world?
- I wish I knew more about the world and pollution.
- I wish I knew more about why people are hurting the earth.
- How can I tell others about water pollution in my community?
- How can we fulfill human needs without polluting?

Based on these questions, their teachers selected "Pollution and Recycling" as the topic for a standards-based unit and began to develop the unit.

Community Resources. What in your community naturally lends itself to study? A hydroelectric power plant? A theater? A river, lake, or dam? Community resources are rich in potential for study and often bring standards from several disciplines into focus, thus leading to interdisciplinary or integrated studies.

Local Curriculum. Some local curriculum documents specify expected or recommended topics for study and those can be useful for both addressing standards and meeting local expectations. For example, the Addison Northeast Supervisory Union Curriculum Framework recommends the following topics at the high school level: heredity, the Sixties, Riverwatch, conflict, the Constitutional Convention, civil rights and responsibilities, and the Renaissance Festival.

Standards. Peruse the standards documents you are using to design your unit of study. Do any of the standards suggest topics that merit an entire unit of study? For example, a standard that says "Students understand the relationships, properties, and measures within and among one-, two-, and three-dimensional geometric objects," could be the focus of a mathematics unit of study. "Students know about various careers. This is evident when students experience careers directly or indirectly through classroom work and community experiences such as job shadowing, working with a mentor, or performing community service," could lead to a unit called "Careers" or "Adopt a Business."

Step 2: Select Standards to Teach and Assess

Once you have identified a topic or essential question for your unit, select the appropriate local, state, and national standards to teach and assess. Many standards may influence development of a unit, but identify only those to be assessed through the unit. Identifying only the standards to be assessed limits the unit to a reasonable number of standards.

To ensure that you are addressing a balance of standards, include representative standards from each category (adapted from Wiggins 1994):

- **Impact:** Includes standards that relate to goals, purposes, and desired effects—giving a speech that causes desired action, creating writing that communicates with an identified audience, or using geographical knowledge to plan for the future.
- **Process:** Includes standards that require appropriate strategies, techniques, method or manner. For example, a process standard is addressed by giving a clear speech, generating a coherent piece of writing, or using appropriate processes for making or changing rules or laws.
- **Content:** Includes standards that require concepts, ideas, and information—such as properties of matter; the concepts of production, distribution, and supply and demand; or literary forms and genres.
- **Rule or Form:** Includes standards that call for particular forms, traits, formats, or features (e.g., volume, rate, and inflection in a speech; purpose, organization, and details in an essay; use of proper conventions in a speech or in writing; or correct labels and use of color on a graph).

Mixing the types of standards strengthens the unit. For example, skills and processes are meaningless in the absence of content, and content that is not applied has little value. For the unit on pollution and recycling, the teachers identified the following standards to focus the study:

Service Learning. Students work with educators and community members to plan service-learning experiences that meet actual community needs (impact). Students prepare for service-learning experiences

by developing a plan that includes identification of activities, the skills needed to complete these activities, communication needs, and ways to evaluate the success of the experience (process). Students discuss and write about service learning experiences (process).

Information Technology. Students use computers, telecommunication, and other tools of technology to communicate, research, and to gather information and ideas (process).

Abstract and Creative Thinking. Students use manipulatives, sketches, and concept maps to model problems and to create and explain theories (rule or form).

Arts, Language, and Literature. Students demonstrate an understanding of the structures of the English language, for example, sentence, paragraph, and text structure (rule or form).

History and Social Sciences. Students use knowledge of limited resources, conditions of production, and waste disposal to make decisions about buying and using goods (content and process). Students apply understanding of the concepts of production, distribution, supply and demand, and public or private sectors to historical and contemporary problems (content and impact).

Science, Mathematics, and Technology. Students use scientific method to describe and explain natural phenomena (process).

Step 3: Brainstorm Activities and Resources

Brainstorm connections, possibilities, and resources before planning specific activities for the unit. Use your experience, teacher resource books, colleagues, students, and community experts to help with this step. Given the topic for the unit and the standards you have identified, what activities might help students attain the standards? What resources are available? What resources are needed? For example, brainstorming about an activity on pollution and recycling might result in a list similar to Figure 3.2.

FIGURE 3.2
Brainstorming for a Unit on Pollution

Promoting Recycling	Present and Alternative Practices	Preventing Pollution
Composting at school Sorting trash Household energy Use inventory graphing Make own paper Measuring water Trash art "What Kind of Waste Am I?" Generate questions and interview food service personnel	Shopping lists Cost of building electric versus gas cars "Hauling It Away"	Water Flow Table Green-Up letters bottle biology current events songs, stories, raps

Resources	
Dick Knight	Vermont Dept. of Natural Resources
Mrs. Taylor	Project Wild
Highgate Landfill	Midas Muffler
McNeil Generating Station	Car dealership
Franklin County Solid Waste Management	Vermont Country Milk
Lake Champlain Basin Group	

Step 4: Select Tasks and Activities

Learning-teaching activities are the means through which students learn knowledge, skills, and habits of mind, and through which they demonstrate their learning. There is one note of caution: Standards-based activities are not necessarily synonymous with big events or displays. A field trip to view a movie or play, or a science fair display of student projects may motivate students and communicate with parents, but neither is necessarily a task through which students demonstrate their learning—the essence of standards-based activities.

Typically, standards-based units are comprised of three kinds of learning-teaching activities: (1) **introductory activities** stimulate student interest in the topic and motivate students to participate in the unit of study, (2) **enabling activities** through which students learn and demonstrate the knowledge, skills, and habits of mind needed to attain the identified standards, and (3) **culminating activities** through which students demonstrate their learning of most or all standards identified as the focus of the unit of study. (Culminating activities are more often included in interdisciplinary and integrated units than in discipline-specific or multidisciplinary units.)

Designing the Culminating Activity. Plan the culminating activity first to help shape the unit, provide an identified end-point for the unit, and guide the selection of enabling activities. Teachers in Morrisville, Vermont, identified desirable characteristics of a culminating activity:

- Encompasses the standards that focus of the unit of study.
- Assesses success in relation to the identified standards.
- Calls for the application of knowledge and skills.
- Demonstrates knowledge to an extended audience (more than the classroom teacher).
- Establishes high expectations for learning.
- Celebrates learning by calling for reflection and brings closure to the unit.
- Calls for interaction with others.
- Motivates students.
- Encourages student self-direction.

The Applied Learning Standards, designed through the New Standards Project (1995), suggest wonderful possibilities for culminating activities appropriate for standards-based units of study. Combined with standards from one or more disciplines, the Applied Learning Standards can lead to tasks through which students build and demonstrate learning. Consider culminating activities that require students to:

- Design a product, service, or system that meets an identified need.
- Plan and organize an activity.

- Develop and implement a teaching-learning program.
- Conduct a project in response to a client need.
- Devise and test ways to improve the effectiveness of a system.
- Deliver oral presentations.
- Use information technology to collect, analyze, organize, evaluate, and present information from diverse sources.

Planning and Sequencing Enabling Activities. Enabling activities are designed and sequenced to build the knowledge and skills necessary for students to attain the identified unit standards. Planning and sequencing the enabling activities is a process of task analysis and creation. What knowledge and skills do students need to attain the identified standards? What activities lead students to learn and demonstrate the necessary knowledge and skills? The following criteria guide the selection and design of learning-teaching activities. Enabling activities

- Relate to one or more specific standards.
- Build the knowledge and the processes needed to attain standards and to successfully complete the culminating activity.
- Engage students.
- Promote active learning.
- Assess student performance.

Figure 3.3 is an example of an enabling activity for a unit called "Is Jurassic Park Possible?" The activities listed (along with others focusing on scientific investigations, scientific method, and essay and report writing), prepare students to successfully engage in the culminating activity. The culminating activity in this example is an editorial that defends their answer to the driving question for the unit, "Is Jurassic Park Possible?"

Designing the Introductory Activity. Now that you have designed the culminating activity and planned and sequenced the enabling activities, you can choose introductory activities to stimulate and motivate your students. Consider activities that set the context for the study, provide knowledge, develop skills, and motivate students. Teachers from South Carolina (Hugley, Goldsmith, Carter, and Moreland 1995) included the following starter activity in a unit called "The Ocean: From Surface to Sea Floor," designed for middle-grades students with special needs.

FIGURE 3.3
Sample Enabling Activity

Standard	Necessary Knowledge and Skills	Enabling Activities
Living Organisms, Standard No. 4: Students demonstrate understanding of characteristics of organisms and see patterns of similarity and differences among living organisms.	• Cells (structure and functions, uses of energy and food). • Molecular basis of heredity (DNA, chromosomes, mutations). • Behavior of organisms (hormones, nervous system, evolution). • Interdependence of organisms (flow of energy, cooperation and competition, environmental constraints). • Biological evolution (natural selection) and adaptation, species, variation, extinction.	• Give lecture bursts on DNA structure. • Build cell and DNA model. • Build model of a DNA molecule. • Participate in onion root tip lab. • Make a pedigree chart. • Create Punnett squares. • Use SimLife computer simulation.

Adapted from Is Jurassic Park Possible? by C. Bates, University of Michigan, 1995.

1. In small groups, students brainstorm about specific things that they know and want to know about oceans. After listing their questions and topics on chart paper, the students organize the information into categories (e.g., living things, non-living things, and how humans use oceans). Post the cumulative list on the classroom wall for the duration of the unit of study.

2. Students take a field trip to Roper Mountain Science Center to see the simulated aquatic habitats.

3. Students illustrate a folder or portfolio with an ocean theme. Teachers laminate the folders; students keep selected activities in the folders while working on the unit.

After planning the topic, standards, and activities for the unit, check for alignment among the components. (1) Does the topic need to be

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revised? (2) Do any standards need to be added or deleted? (3) Are the activities sufficiently linked to the topic and the standards? For example, you may determine that a field trip to a local museum—while fun and exciting—does not help students attain the identified standards for the unit. You must then decide whether to add and assess relevant standards to make the field trip a purposeful activity or to omit the field trip.

Revising Existing Units

To analyze and revise existing units of study, use the same procedure that you would use to develop a unit of study. Think about the national, state, or local standards that you are expected to teach and answer the following questions to revise each unit.

- What standards does the unit address?
- What activities should be added to ensure student success in attaining standards?
- Which activities are not central to attaining the standards? Should those activities be dropped?
- Do the identified standards address impact, process, content, rule or form, or do additional standards need to be added to achieve balance and focus the unit?
- If standards are added, do you need to add more activities to support students in attaining these standards?
- Considering the unit as whole, are the activities doable, or should some be changed or omitted?

Whether you are designing or revising a unit, once you have identified and linked the topic, standards, and activities, you need to identify the products and performances that can be used to assess student learning.

4 Aligning Products and Performances

In Chapter 3 you learned a process that helps develop or modify learning-teaching activities and units of study based on standards. At this point you're ready to focus on student products and performances as evidence of the learning that results from those activities and units.

You need evidence to document student progress toward standards. Products and performances may be thought of as *sources of evidence*; these documents, artifacts, demonstrations, and interactions provide proof of each student's progress in attaining the unit's standards. Products and performances may be categorized as (a) written, (b) visual, (c) oral or aural, (d) built and made, or (e) as combinations of these categories. See Figure 4.1 for examples of products and performances.

Begin selecting products and performances by focusing on the standards addressed through the unit (the target) and then move to the products and performances (the tools) while considering these questions:

- What standards have been identified?
- What activities have been identified?
- What products and performances might represent student progress in meeting these standards?
- Considering the standards, activities, and products and performances together, are they the right ones? Do you need to (a) change the activities, (b) change the products and performances, (c) reconsider the standards, or (d) consider a combination of factors?

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See the section "Issues Related to Selecting Products and Performances," at the end of this chapter (p. 29) regarding teacher versus student choice, individual and group products and performances, access to resources, and audience.

FIGURE 4.1
Products and Performances as Sources of Evidence

Written	Visual	Oral or Aural	Made or Built	Combination
Essays	Diagrams	Reports	Models	Videotapes
Letters	Flowcharts	Debates	Constructions	Multimedia presentations
Poems	Drawings	Musical performances	Exhibits	
Narratives	Paintings	Readings	Sculptures	Dramas
Reports	Graphs	Interviews	_____	Experiments
Instructions	Maps	_____	_____	Dance
Quizzes	_____	_____	_____	_____
_____	_____	_____	_____	

Standards as the Target

One of the most powerful aspects of standards-based curriculum and assessment is that the standards used to plan the unit are also the targets for our students. Stiggins (1991) puts it this way, "Students can hit any target they can see and that holds still for them." To carry Stiggins' thought a step further, students use products and performances as tools to hit the target. Just as you might use your choice of a bow and arrow, a rifle and ammunition, or a slingshot and a rock to hit a target, students may use many different products and performances to hit the standard.

For example, consider the standard "Students communicate proficiently in at least one art form, showing the ability to define and solve artistic problems with insight, reason, and technical proficiency." Depending on the activities used in the unit, students may meet standards and produce *sources of evidence* through dance, a multimedia presentation, a painting, or in a myriad of other ways.

Collectively, each student's products and performances must encompass all of the standards selected for a given unit. Each standard

does not require a separate product or performance, though criteria and the documentation of learning are separate for each standard. Products and performances that embody excellence across multiple standards indicate an efficient teaching and learning process and a meaningful curriculum.

Selecting Products and Performances

Several types of student products and performances are listed in Figure 4.1, p. 26. Although the list is not exhaustive, it does offer some of the options and combinations available. Not every product and performance is equally suited to all students, all standards, or all situations. The following steps can help you select powerful and appropriate products and performances.

1. Consider the Selected Standards. Chapter 3 includes a process for identifying unit standards. The power of standards-based curriculum and assessment design is that it provides common targets for teachers and students. Keep an eye on the target—the standards—throughout the decision-making process. Resist the temptation to become, as Sable (1995) puts it, "lost in activity land."

Do the standards specifically indicate products and performances? For example, if you select a standard having to do with scientific investigation, then a log of observations and findings is an obviously indicated product. If a standard addresses dancing, writing, speaking, or using technology, particular products and performances are implied.

2. Review the Selected Activities. You selected activities using the process described in Chapter 3, but review your activities as you select products and performances to make certain that they demonstrate progress in meeting the standards.

3. Brainstorm Appropriate Products and Performances. Use Figure 4.1, p. 26, to stimulate your thinking about products and performances that could serve as sources of evidence of student learning. Make sure the products and performances, taken as a whole, provide sufficient documentation. Do they emerge naturally from the activities included in the unit, or do you need to revise the activities to better incorporate the products and performances? For example, you may include standards

related to research, active listening, and responses to literature in a unit on New England in the pre-revolutionary war era. In selecting products and performances, you may find that narratives, exhibits, and dramatic presentations flow naturally from planned activities. To adequately address the standard related to active listening, you may need to add or revise some activities to generate student interviews, debates, or discussions.

4. Consider Multiple Intelligences and Learning Styles. As you plan products and performances (as well as activities), consider ways to address the standard that incorporate one or more of the multiple intelligences. To share attainment of standards, students need to be able to use modes of demonstration that are comfortable for them. Gardner (1983) has identified seven distinct intelligences:

- Linguistic
- Logical-Mathematical
- Spatial
- Bodily-Kinesthetic
- Musical
- Interpersonal
- Intrapersonal

A unit on pre-revolutionary New England and targeted standards related to research, active listening, and response to literature might lead you to select products including narratives or essays (linguistic), dramatic presentations (linguistic, bodily-kinesthetic, interpersonal, and possibly musical), reflections on oral readings (linguistic and intrapersonal), or model villages based on research (logical-mathematical, spatial, and interpersonal).

Dozens of learning style models deal with variables including modalities or sensory tracks, field dependence, mediation, and psychological types. Likewise, there are several teaching strategies built on learning style models. Some strategies emphasize learning experiences across a range of learning styles (4MAT system, McCarthy 1980); others focus on identifying and matching preferred styles (Marie Carbo at The National Reading Styles Institute in Syosset, New York).

Multiple intelligences and learning styles can be used to develop products and performances related to standards. Some researchers, including Carbo, advocate as close a match to preferred style as possible while others argue for occasional deliberate mismatching to help students learn flexibility (Butler 1984).

Some standards link closely with specific intelligences or styles; for example, a standard related to reading comprehension requires a product or a performance with a linguistic component. Over time and across units, students should have the opportunity to develop all intelligences and, at least at times, to rely on their preferred learning styles. Consider these factors as you plan products and performances, particularly if you already embrace multiple intelligences and learning style models. If not, this may be a good time to review the literature, talk to colleagues, and consider the benefits for you and your students.

5. Review the Unit as a Whole. Is the unit coherent? Does it work instructionally? Does it address the standards adequately? Does it make sense to the learners? Do the products and performances allow for assessing attainment of the standards?

Take time now to avoid losing the standards focus in the process of developing activities and making decisions about products and performances. Fine-tuning is often necessary to ensure a focus on standards.

Issues Related to Selecting Products and Performances

While the process of selecting products and performances is fairly straightforward, the following issues merit your consideration.

Teacher Choice and Student Choice. Common sense as well as research in motivation, learning styles, and multiple intelligences indicate that students produce better work when they have some choice in determining the product or performance. As the teacher, however, you may require particular products of everyone at certain times—even to the extent of specifying a narrative from a certain character's viewpoint. Or, you may require your students to represent the viewpoint of a particular character while choosing their mode of presentation (e.g., written narrative, audiotape, script of a scene).

Students do need to practice developing all kinds of products and performances, from essays to data bases. Students need to learn how to develop new types of products and performances while building their strengths.

Whether selected by the teacher, the student, or together, make certain all products and performances have the potential to measure progress toward the standards and that the combination of products and performances address the standards.

Individual and Group Products and Performances. Although students may develop only individual or group products and performances within a single unit of study, over time they need experience both kinds. As products and performances are selected, the teacher and students need to be aware of mixing individual and group work.

Some products and performances (e.g., oral presentations and graphic displays) may be completed by an individual or a group of students. Experience completing tasks both ways can help students understand and appreciate the advantages and disadvantages of each approach. For example, developing multimedia presentations with a group has the advantages of multiple perspectives, various areas of expertise, and a shared work load. Some individuals, however, find that the group process slows down progress or gives them less ownership of the product.

Resource Considerations. As you select products and performances, you must make sure that all students have access to the necessary resources. Resources include time, materials, equipment, and people. If students are assessed by their development of certain products and performances, they must have equal opportunity to produce or perform. Setting expectations in the absence of adequate resources is a major equity issue.

5 Selecting Assessment Criteria, Scoring Guides, and Exemplars

In standards-based units of study, student products and performances are assessed by criteria that are directly linked to standards. The criteria usually focus on important characteristics of student performance (e.g., accuracy or use of models) and may judge the impact of the performance. The criteria can then further be defined by a continuum or scale that describes two or more positions for each criterion. For example, the range may be from *barely there* to *beyond the requirements of the task*, or from *novice* to *expert*. The criteria, scale, and performance descriptions result in a scoring guide that can be used to communicate student performance in relation to standards.

A complete standards-based assessment system provides examples of student work, called exemplars or benchmarks, that define unacceptable and acceptable levels of performance in concrete and meaningful ways for students, parents, teachers, and others concerned about student learning. Taken as a whole, the activities, products, performances, criteria, performance descriptions, and exemplars are *sources of evidence* used to document progress and attainment of the standards. Remember that a single source of evidence does not represent attainment of a standard. Rather, a student builds a portfolio of sources of evidence across time, within and across units. Multiple sources of evidence are needed to document the attainment of any one standard.

Standards-based assessment can be a powerful tool for you and your students:

- The standards set clear targets and expectations for students, teachers, and parents.
- Students improve their ability to monitor and evaluate their own work and assess their progress as they work with standards-based sources of evidence.
- Products and performances provide an ongoing, cumulative data source for measuring progress over time, within and across units.

Criteria

Criteria specify the dimensions or characteristics of standards for judging student work. Clear, specific criteria are the foundation of standards-based assessment because they set the parameters for assessing student performance.

One way to identify standards-based criteria is to circle or highlight key components of the standard, then it's easier to determine if any additional criteria are needed (see Figure 5.1).

FIGURE 5.1
Identify Criteria Using Standards

Standard	*Criteria*
Students select **appropriate technologies** and **applications** to solve problems and to communicate with an audience through **graphics, text, data, sound,** and **movement.**	Selecting technologies. Applying technologies. Using graphics, text, data, sound, and movement.
Students plan and organize an activity by 1. Developing a **proposal** and obtaining approval for an activity. 2. **Planning** and **organizing** all aspects of the activity. 3. **Overseeing** the event through completion.	 Proposal Planning Organizing Overseeing

Because criteria specify aspects of student learning, they should be clear, tie directly to standards, and be written in language easily understood by students and parents. Criteria should be communicated early and frequently to students and parents, as well as among educators.

In the early development of performance assessment, teachers overemphasize concrete and easily measured aspects of products and performances (typically criteria related to format and features). An advantage of tying criteria to standards is that the standards force you to consider other dimensions essential to meeting standards, including those related to impact, process, and knowledge. For example, consider Vermont's Writing Dimensions Standard 2.1: "Students draft, revise, edit, and critique written products so that final drafts are appropriate in terms of the following dimensions: Purpose, Organization, Details, Voice and Tone, and Conventions." The conventions of grammar (proper use and mechanics) are part of the assessment, and linking to this standard ensures that the criteria for purpose, organization, details, voice, and tone are also assessed.

Criteria for student learning in relation to standards should not be confused with expectations for products and performances. A teacher at one of our workshops on standards-based curriculum and assessment reported this distinction as a major breakthrough for him. In revising his team's "Northern Studies" unit, he identified standards for writing, geography, and science inquiry to focus the unit. Then he pulled out his checklist to assess student writing and found items that focused on the length of the paper and the number of bibliographic references. He commented "These aren't the kind of criteria you're talking about, are they? These are the expectations I set for the written product itself, but the feedback I give students on their writing should be in relation to criteria directly related to the standards that are part of the unit." His new chart clarifies the distinction (see Figure 5.2).

The teacher added "Now I need to develop criteria for the geography and science inquiry standards. I've missed these areas entirely in the past." When planning a standards-based unit of study, make certain that the assessment criteria tie directly to the standards and that they sufficiently define attainment of the standards.

Once you have identified criteria, decide on a scale to organize performance descriptions.

FIGURE 5.2

Standards-Based Criteria for Writing				Expectations for the Written Report
Impact	**Process**	**Content**	**Form and Rule**	
Inspires audience to act on communicated information Causes audience to change behavior	Clear language Logical sequencing of ideas Coherent introduction, body, conclusion	Accurate information Uses illustrations and examples Uses technical vocabulary	Details support thesis statement Topic sentence in each paragraph Word choice is consistent with standard written English	Final version is typed 300–500 words long Author's name and date appear on each page

Scales

A scale is a continuum in relation to a criterion or criteria. In standards-based curriculum, each scale is usually further defined by performance descriptions. Three types of scales are commonly used in standards-based assessment: numerical scales, qualitative scales, and combination scales.

Numerical Scales. A numerical scale assigns each criterion a number on a continuous scale and thus communicates continuous progress in an easily understandable way.

Criterion	Scale					
Use of conventions	1	2	3	4	5	6

OR

Criterion	Scale		
Sequencing of ideas	1	2	3

Qualitative Scales. A qualitative scale works the same way as a numeric scale, but uses descriptors instead of numbers. Common descriptors are novice, proficient, and advanced. A qualitative scale is part of the scoring guide in Figure 2.3, p. 12, and students can use it as a model for developing their own scoring guides.

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Combination Scales. Sometimes numbers and descriptors are used together to form a combination scale, combining the advantages of verbal description with the advantages of a numerical scale in determining progress.

Novice	Proficient	Advanced
1	2	3

Performance Descriptions

Performance descriptions briefly describe two or more positions along a continuum identified by the criteria. The relationship among standards, related criteria, a combination scale, and performance descriptions is illustrated in the following example.

Teachers at Hunt Middle School in Burlington, Vermont, (Vermont Department of Education 1995) developed a standards-based unit tied to the egg-drop, an event that is common in schools nationwide. For this event, students use specifications to create a crate that keeps an egg from breaking when the crate (containing an egg) is dropped from a second-story window. In developing the unit, the Hunt Middle School teachers first identified related standards.

Problem-Solving Process. *Standard 2.1* Students use reasoning strategies, knowledge, and common sense to solve complex problems.

Problem-Solving Approaches. *Standard 3.1* Students apply their knowledge, curiosity, imagination, and creativity to solve problems.

Scientific Investigation. *Standard 1.9* Students conduct investigations and projects.

While conducting investigations, students use the following skills:

- Asking relevant questions.
- Setting and following procedures.
- Collecting and recording data.
- Presenting representative data and results.
- Making conclusions based on evidence.
- Including contributions of others.

- Communicating results.
- Reflecting and defending conclusions.

Space, Time, and Matter. *Standard 5.1* Students demonstrate understanding of concepts of space, time, and matter including motion and forces and the relationships between them.

Design Technology. *Standard 1.3* Students use tools, materials, and resources to fabricate things efficiently and creatively.

Based on these standards and the egg-drop project and theme, the teachers designed a scoring guide, including criteria, a qualitative scale, and performance descriptions for each point on the scale. See Figure 5.3.

Involving students in developing performance descriptions in relation to criteria and scale builds awareness and helps them link learning to standards. In writing performance descriptions, be sure to align descriptions (scale) with the right criteria. In addition, each description should be clearly differentiated from those to either side on the scale—the progression from one point on the scale to the next should be distinct. Finally, when writing performance descriptions, use words that are clear descriptors of performance (e.g., many, some, few, none; always, sometimes, never), and avoid words that are judgmental and may be open to interpretation (e.g., excellent, good, fair; effective, ineffective).

Begin writing performance descriptors at the point on the scale where the performance meets the standard. Once descriptors are in place for each criterion, write descriptors for the points on the scale that exceed the standard (if any), as well as for points of the continuum that represent progress toward attaining the standard. Base your descriptions on your experience—you can refine and create descriptors as you implement standards-based units and collect exemplars of actual student performance in relation to standards.

Types of Scoring Guides

Scoring guides are assessment tools that combine standards-based criteria, a scale, and performance descriptions. Scoring guides may be either holistic or analytic, and either general or task-specific. Thus, there are four types of scoring guides (1) holistic and general, (2) holistic and task specific, (3) analytic and general, and (4) analytic and task specific.

FIGURE 5.3
Scoring Guide for Egg-Drop Project

Scale / Criteria	Scrambled	Humpty Dumpty	Soft-Boiled	Eggs-ceptional
Understood the problem.	Followed part of directions and used material not listed.	Began to build a crate.	Designed a crate according to specifications.	Designed crate so that egg did not break.
Used blueprint to model the problem.	Used materials not listed, sketch was unclear or incomplete.	Attempted sketch, but is incomplete or difficult to visualize.	Completed sketch is labeled and easy to visualize.	Drew sketch in perspective and to scale, with labels.
Evaluated effectiveness of crate and made adjustments.	Did not make tests or adjustments.	Made one test without adjustments.	Made two or more tests with adjustments.	Made a series of tests and adjustments to prevent breaking the egg.
Communicated results to an audience.	Did not include charts, graphs, or diagrams.	Attempted to use charts, diagrams, and graphs, but information is not clear.	Used graphs, charts, and diagrams to show results.	Used more than one representation to show results.
Demonstrated relationship between motion and force.	Did not demonstrate understanding.	Attempted to explain relationship between motion and force.	Explained (orally or in writing) the relationship between motion and force.	Related relationship between motion and force to Newton's laws.

Holistic Scoring Guides

Holistic scoring guides describe a student's work as a single score based on overall quality. Using a holistic scoring guide, performance is judged by a single description for each level on the scale, rather than judged by a separate descriptor for each criterion as with an analytic guide. Familiar examples of holistic scoring guides are those used in diving competitions and for the Advanced Placement Examination.

Holistic scoring guides are easier to develop and use than analytic scales and are useful for scoring complex processes. Holistic guides require careful anchoring in benchmarks and exemplars of student work. Without careful use of benchmarks, holistic scoring guides and their users are open to attacks related to reliability and scorer bias (see A Word About Reliability, p. 43). Also, holistic guides offer little specific information to help students or teachers pinpoint areas for improvement. The following scoring guide (Crawford, Griner, Winn, and Johnson 1995) for a conflict resolution video is holistic and task specific.

4 — The video reflects knowledge of multiple strategies to transfer physical and oral anger into more appropriate areas of conflict resolution leading to passive disagreement. The video depicts a conflict scenario and a before and after situation. The video shows three effective ways to manage conflict and includes at least five examples of vocabulary terms used in the unit of study.

3 — The video reflects knowledge of several strategies to transfer physical and oral anger into more appropriate areas of conflict resolution leading to passive disagreement. The video depicts a conflict scenario and a before and after situation. The video shows two effective ways to manage conflict and includes at least four examples of vocabulary terms used in the unit.

2 — The video reflects knowledge of two strategies to transfer physical and oral anger into more appropriate areas of conflict resolution leading to passive disagreement. The video includes before and after aspects of a conflict situation. The video shows an effective way to manage conflict and includes at least three vocabulary terms used in the unit.

1 — The video reflects knowledge of strategies to transfer physical and oral anger into more appropriate areas of conflict resolution leading to passive disagreement. The video reflects a scenario, but it does not include a before and after situation. The video shows no effective ways to manage conflict and includes fewer than three vocabulary terms used in the unit.

Analytic Scoring Guides

Analytic scoring guides specify criteria to be assessed, provide a separate score for each criterion, and may include a composite score for overall performance. In some cases, the composite score is weighted based on the importance of each dimension. Often, an analytic guide includes descriptors of key features or attributes at each level.

A familiar example of an analytic guide is used in figure skating. The judges provide scores on technical merit and artistic impression, and the two scores are combined for a composite score (a third dimension, the compulsories, was eliminated some years ago).

Analytic guides are useful diagnostic tools that clearly specify expectations for component parts of a product or performance. It's easy to train someone to use an analytic scoring guide because the descriptors are concrete. On the other hand, some people argue that some knowledge and skills (e.g., performing arts, certain athletic performances, and specific types of writing) should be assessed holistically so that students do not become preoccupied with the components.

The egg-drop scoring guide (Figure 5.3, p. 37) and the sample scoring guide in Chapter 2 (Figure 2.3, p. 12) are both analytic scoring guides. Both guides are also task specific.

General Scoring Guides

A general scoring guide can be used for a wide range of products and performances and often addresses a thinking or learning process, including problem solving or hypothesis testing. General guides also exist for speaking, writing, graphic presentations, and other forms of communication.

General scoring guides are practical because they can be used over and over after being developed and refined. As you and your students

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work with these scales, the language of the scales and performance descriptions will begin to emerge as you plan and evaluate work. For example, it's not unusual to overhear 4th graders discussing voice and tone in peer conferences after using the Vermont's writing scoring guide. In addition, general scoring guides can be used to monitor student attainment of standards over time, across several units, and using multiple products and performances.

The mathematics scoring guide in the Introduction, Figure I.1, is a general scoring guide because it can be used for problem solving and assessing communication across many types of mathematics problems (e.g., geometry, algebra, and statistics).

Task-Specific Scoring Guides

Some tasks require custom scales. For example, an essay about the last days of Czarist Russia may be scored using a general guide for writing criteria, but the teacher needs a task-specific scoring guide for historical accuracy criteria (e.g., history, politics, and culture of the era). The scoring guide for the egg drop (Figure 5.3, p. 37) and the one for the conflict resolution video (pp. 38–39) are both task-specific scoring guides.

The disadvantage in using task-specific scoring guides is that they take time to create for each of the many tasks typical of standards-based units and they may limit your ability to monitor student attainment of standards over time and across several units.

Collecting Exemplars

Standards-based assessment is most powerful when grounded in examples of student work. As your students work through the standards-based units, have them help select work that is clearly exemplary of the standards. Exemplars serve three functions.

1. Exemplars of student work help ensure fair and consistent feedback to students by providing a stable reference point across students and over time. The practice of referring to these papers when scoring or grading student work helps ensure consistency in scoring (psychometricians refer to this as reliability).

2. Exemplars give students a clear view of the target. If you share performance descriptions and related exemplars of student work with students in advance, students can—and do—begin to evaluate their own work in relation to the standards.

3. Exemplars are useful in communicating with parents. Performance descriptions alone are seldom detailed enough to allow parents to visualize the desired result. Examples of student work define unacceptable and acceptable levels of performance in a concrete and meaningful way for parents and others who are concerned about student progress.

A powerful way to communicate standards-based performance is to use some of your classroom space as a bulletin board. Place the standards, scoring guides, and performance descriptions on the walls and post student work that clearly meets the standard. Link the exemplars to the standards with string (some student work may link to more than one standard, or may exemplify some, but not all, criteria). Although a bulletin board display may call to mind written work and visual art, the string may also be attached to models, videotapes, computer disks, or descriptions of student work displayed on a table or off-site (give directions to locations in the community or on school grounds).

Other Forms of Assessment

The use of scoring guides is essential to directly linking assessment to standards, particularly when these standards suggest impact, process, or content criteria. At times checklists, observations, or more conventional means of assessment may be more efficient.

Checklists

Use a checklist when you to need to measure yes or no, present or absent criteria, or expectations, such as rule or form criteria having to do with desired features or formats or expectations having to do with neatness, timeliness, or page length. Checklists are effective in measuring concrete, specific characteristics, for example, "Data are represented in a specific number of significant figures," or "Title is centered above the graph." Checklists are useful when an activity or task requires students to pay attention to many specific details and can be useful

self-assessment tools. Use a checklist for early education screening, such as recording a child's knowledge of colors and shapes.

A variation on the checklist is a weighted numerical scale that allows different proportional values or weights to be assigned to the criteria.

	Points Possible	Points Earned
Neatness	10	_____
Format	10	_____
Data Presentation	20	_____

Similarly, numeric, qualitative, and combination scales without performance descriptions can be useful for assessing student learning in relation to expectations and rule or form criteria. A Likert scale is frequently used for this purpose.

	Less Effective				More Effective
Neatness	1	2	3	4	5
Format	1	2	3	4	5
Data Presentation	1	2	3	4	5

Observation

If the target is a performance and no permanent record is left behind, then direct observation is a legitimate procedure for collecting and recording data. Special rules apply—the performance must be observable and there must be clear levels of performance that observers can easily and consistently differentiate. Observers may need to be trained to differentiate between the indicators (e.g., an experienced swim coach to differentiate between a good dolphin kick and a poor one). Another example is student use of safety procedures in science lab. The performance descriptions might be:

1—Student opens materials or begins procedures then puts on safety goggles only after reminder from teacher.

2—Student opens materials or begins procedures then puts on safety goggles without prompting.

3—Student puts on safety goggles before opening materials or beginning procedures.

Conventional Assessment Methods

Some standards lend themselves to documentation through conventional tests and written homework, particularly if the standard has to do with content or information. When designing standards-based assessment, it is important to tie the methods of documentation to the standards.

A Word About Reliability

Reliability, consistency, stability, and predictability are key considerations in standards-based assessment. Reliability is a particularly challenging issue when developing criteria assessments for high-stakes decisions, including state-wide assessments, graduation requirements, or retention and promotion. In these cases, extensive training of assessors and validation of assessment instruments are both essential.

In the classroom, reliability is within reach if you provide

- Criteria that are clear, do not overlap, and specifically link to standards.
- Scales with clear distinctions between levels.
- Performance descriptions that are specific, observable, and can be documented.
- Exemplars of student work that illustrate levels of attainment.
- Evidence of consistent judgments over time and across students.

Factors of reliability develop as you and your students become more experienced with standards-based assessment and as you collect exemplars of student work. With experience and the development of benchmarks, your students will share common expectations and become better at monitoring their own learning. Standards-based assessment, linked to clear standards and shared among teachers, students, and parents, can make a powerful impact on learning and teaching.

6 Using Standards to Communicate About Learning

As you move to standards-based curriculum, instruction, and assessment, it is important to communicate with others who are concerned about student learning. The most important communication is with your students because standards-based practice is, first and foremost, a learning tool. You also need to plan for communicating with parents, community members, colleagues, and with the administrators and the school board members.

You will make some communication decisions alone. Some communication decisions will be made by you and colleagues as a team or department, as a building, or as a district. In this chapter, we consider the communication needs for each group, recognizing that decisions are made differently depending on the circumstances.

Communicating with Students

A standard is a clear target only if students can identify it and what they need to do to hit it. Spend time with your students discussing standards and developing clear, easily understood language to use in monitoring their progress.

Develop Student Understanding. Take time to review the standards and the criteria with your students. Have your students explain what they are expected to do in their own words.

Discuss the Scoring Guide. Have students carefully review the scoring guide and the performance descriptions. After using the scoring guide over time, review the exemplars together and ask your students to generate new or revised scoring guides in pairs or small groups.

Use Scoring Guides in Peer Evaluation and Self-Evaluation. Have your students use the scoring guides as they develop products and performances. Encourage them to assess themselves and explain to what degree their work meets the criteria and why. Have them do the same in peer conferences. As you monitor the conferences and review the self-assessments, encourage the students to use the language of the standard, criteria, and performance descriptions.

Students need time to discuss standards and to practice using the scoring guide. Let your students review other students' work—both work that does and does not meet the desired performance level. Finally, they can attempt to assess their own work, discuss it with peers, and incorporate the results in their products and performances.

Fortunately, standards-based performance is readily taught to young students. The idea makes sense to most students and sharing a language in monitoring their work increases their control over their own learning.

Grading

"How will I be graded?" is one of the first questions students (and parents) typically ask when faced with the idea of standards-based assessment. Although many teachers prefer that standards-based assessment replace traditional grading, it's out of the question in many places. Some schools and districts have developed parallel systems, with students receiving a letter or numeric grade based on conventional assessments along with a performance measure. Often, the traditional grade is seen as the real measure and the performance assessment as an interesting but relatively unimportant addition.

Some teachers, schools, and systems have incorporated performance assessment within traditional grading, often using weighted numeric scales (see Checklists, pp. 41–42). A weighted numeric scale has the advantage of producing a single measure of progress, yet has the potential disadvantage of confusing growth and attainment of standards with measures such as factual recall.

In some cases, standards-based assessment is not immediately incorporated into the grade but becomes part of a portfolio for overall assessment. For example, author Doug Harris' son, Seth, attends school in a district that maintains math portfolios throughout middle school and high school. The final math performance assessment is done at the end of high school or the end of the math sequence. In some instances this type of cumulative review is included in high-stakes decisions, such as performance-based graduation or the certificate of initial mastery; some colleges are beginning to show interest in cumulative performances as a basis for admission decisions.

Each alternative (ongoing separate systems, ongoing single system, and cumulative portfolio review) has advantages and disadvantages. Regardless of the system chosen, students need to see that their products and performances are valuable and valued as a measure of learning.

Communicating with Parents and Community Members

Remember that standards-based education and performance assessment are new to most adults. Your community is used to grading based on the numeric averaging of tests and other measures and, particularly for those who succeeded in this type of system, is most comfortable with what they know.

We're not suggesting that the parents and members of your community will oppose performance learning. We're reminding you to work hard to make sure that they understand what you are doing and why. The single most powerful tool in communicating with parents about standards-based learning is the student-led parent conference. In this type of conference, the students review their work with their parents and explain their performance in terms of the standards, criteria, and performance indicators. As the teacher, you join the conference for a time, supplement the child's review, and add your perspective.

The student-led parent conference has several advantages. One advantage is that as many as four conferences may take place simultaneously with the teacher joining each for a time, allowing for longer and more in-depth conferences.

We have seen student-led parent conferences used by teachers and

students from a range of backgrounds—from primary grade, multiage classrooms through high school. The conferences are universally successful as long as students have had the opportunity to internalize standards as described in Communicating with Students, p. 44.

Another powerful way to communicate with parents and the community is to host a portfolio night. On that night, parents and community members develop products and performances and use a scoring guide to assess their own work. An interesting variation of this idea is the elementary school that uses a home page on the World Wide Web to post performance tasks. Responses to the performance tasks are assessed by students using a rubric (see the Introduction for an example.)

Take every opportunity to communicate and to link student performance to standards—use the media, share student products and performances with the community, and send notes home. As the community becomes more aware of the power of standards-based learning, support will grow.

Communicating with Colleagues

Standards-based student performance can be a powerful communication tool among educators—within teams, from grade to grade, across schools, and in planning for individual needs.

When teams of teachers share students, it is essential to build a common vocabulary and protocol to facilitate planning. Standards-based learning builds a common vocabulary and protocol because many products and performances cut across disciplines and many standards, criteria, and performance descriptions can be used by all teachers.

Teams can develop general scoring guides for areas including communication, and reasoning, and problem-solving. The advantages include (a) students experiencing consistent expectations from classroom to classroom, (b) teachers finding it easier to team when a common foundation for scoring is established, and (c) students and parents receiving consistent messages in a common language. The advantages require team members to work together to develop these common elements and to monitor their work, ensuring consistent application of the standards, criteria, and performance descriptions. The product of this investment in common planning is a solid basis for teaming.

In a strategy similar to teaming, schools, districts, and states can adopt common standards, criteria, and performance descriptions. As common expectations build throughout the student's educational career, unity and coherence enables the student to monitor personal growth consistently.

One difficult management issue is how to store and transport student products and performances. Some schools and districts gather each student's written work in a cumulative paper portfolio, accompanied by performances on scoring guides and supplemented with video, computer disks, and actual artifacts. Several schools and organizations are experimenting with electronic portfolios, but the issue of storage and transmission remains a challenge.

Communicating with Administrators and School Board Members

It is important for administrators and board members to understand what you are doing with standards-based curriculum and assessment and the reasons why. In many cases, administrators are leaders in implementing standards-based learning and assessment, but you may need to help other people develop an understanding of why standards-based learning is such a powerful tool for the students in their schools and district.

As with parents and community members, effective strategies for working with administrators and school board members involve experiencing standards-based learning; having students explain their work in terms of standards, criteria, and performance descriptions; and seeing the support of respected teachers (like you).

Administrators and board members need to know what impact, if any, standards-based learning will have on budget, staffing, scheduling, and resources allocation. They need to know that this type of program is consistent with existing policies and procedures, or if not, why not and why the policies and procedures should be changed. Explain your work in sharing this endeavor with parents and community and remember that parents and community members can be powerful allies.

Communicating with the school's constituencies—students, parents, community members, colleagues, administrators, and board members—is essential for successfully implementing standards-based learning.

7 Beyond the Classroom

Standards-based curriculum and assessment carries implications for decisions, actions, and support beyond the classroom. As you begin to work with state and national standards you are likely to encounter questions, especially "Who in my district and school is responsible for what standards?" and "On which standards am I supposed to focus?" Standards-based learning and teaching can be the driving force behind systemic reform in schools. But, to realize the power of the standards-based approach, you and others in your school, district, and community must reach consensus about critical issues related to the reform.

As standards-based curriculum and assessment moves beyond the classroom, you must help expand participation. Don't forget that educators who are expected to implement the standards should help set them. At the building level, include administrators, parents, and subject area or instructional specialists. At the district level, it's appropriate to involve the school board and the broader community. And, even if not directly involved in making decisions about standards, students need to be aware of the decisions and the reasons for the decisions. Informed students move more quickly to internalize standards and apply them in their own learning.

The local standards must be clearly understood by everyone in the education community; they must also be rigorous, applicable to all students, and used in the design of curriculum and assessment. Use the following steps and related questions to guide your local process of setting and implementing standards.

Setting Local Standards

Decide How to Set Local Standards. Community forums? Staff meetings? Committees? Or a combination?

Decide Who Needs to be Involved. Educators? Parents? Community members? Students? Others?

Decide Where to Focus Efforts. Is your focus to (a) review and adopt state and national standards, (b) review and adapt state and national standards, or (c) develop standards using state standards, national standards, and other resources?

Create an Action Plan. What will be the time line? Who will be responsible for what? What resources are needed? Who will adopt the standards? When will the standards be adopted? How will local standards be drafted, feedback solicited, and revisions made?

Communicate the Plan. Who needs to know? How will you communicate before the process starts (e.g., forums, newsletters)? How will you encourage two-way communication throughout the process?

Adopt and Publish Local Standards. What will be the time line? Who will be responsible for what? (Carefully distinguish opportunities for input and for decision making.) How will adoption and revision decisions be made?

Using Your Standards

Determine Responsibility for Teaching and Assessing Standards. At what grade level(s) will each standard be taught and assessed? Who is responsible for what?

Involve All Educators. What professional development is needed? How will standards-based units of study be shared within schools and across the district?

Develop School and District Assessment Plans. What existing tools can be used to assess student progress in relation to standards? What assessment tools need to be added? Is the plan comprehensive?

Collect Exemplars. What system will be used to collect and share student work? How will we reach consensus about what work should be used as benchmarks?

Plan for Communicating Results to the Community. How do you communicate progress toward standards with students and parents? How do you communicate progress toward standards within the school? Do report cards and other records reflect the selected standards or do they need to be revised? How can school report night be designed around the standards you have adopted? What other channels can be used to communicate progress toward standards to the community?

Plan for Using Results to Review and Refine Curriculum. How can assessment results be used to review and refine (a) responsibility for standards, (b) use of instructional materials and strategies, and (c) use of time?

We have primarily focused on how standards affect you, the classroom teacher. School and district definition of and support for standards-based curriculum, instruction, and assessment can enhance your efforts to improve student learning. And, the most profound effects of standards depend on you and your students. As expectations become clearer and you develop a common language for assessing progress toward standards, you and your students can clearly document improved learning. And, improved learning is what standards-based curriculum and assessment is all about.

Appendix A
A Case Study Simulation

Use this case study simulation to test your knowledge of standards-based curriculum and assessment. As you read the case, think about what you know about standards, activities, products and performances, and assessment.

The Lobster Lab

By Marge Petit and Karin Hess, The Vermont Institute for Science, Mathematics, and Technology, November 1994.

Marge, a 5th grade teacher who loves doing science activities, is not very confident about her understanding of science concepts. As part of her school's new curriculum based on the state standards, Marge is responsible for teaching oceanography. In July, as she scans catalogs for fun science kits, she discovers an aquaculture activity for raising lobsters and introducing them into the wild. Marge places the order as she envisions the students excited about watching the lobsters grow.

Marge forgets about the lobster kit until it arrives in September. She immediately sets it up, thinking that the kids will be thrilled about it when they arrive—a great attention getter for the start of the year.

As Marge expects, the students are wild about the equipment and the possibility of seeing lobsters grow. She has read enough of the instructions for the lobster lab kit to know what to do to get the project going, but has not had time to think it through.

Every day the students check on the lobsters' progress, collect data, and make observations. Marge, overwhelmed with other school projects, has not read the rest of the kit's instructions beyond the section on how to make it happen. Her students seem interested in the lobsters and they are collecting data and recording observations.

When the lobsters are fully developed, the class prepares to send them to Australia. Excited about this part of the experience, the students ask:

- Where is Australia? Is it near Burlington?
- Why do they have to go there?
- I've seen lobsters in Maine. Why can't we just take them to Maine?

- What are the things in the tank that look like lobsters? Are they babies?
- Why is this important for us to do?
- When the lobsters are gone, can we raise other things in this system?

Marge hands out "Thank You for Saving the Environment" certificates to the students and hopes to deflect their attention from the questions she is unable to answer. Her students like the certificates, of course, but they ask, "What does this have to do with saving the environment?"

Marge, ordinarily a conscientious teacher, suddenly panics. She realizes all of the things her students could have learned if she had taken the time to think about how this activity fits into the rest of the curriculum. She also notices that the quality of the students' data collection will not allow them to send off for the prizes connected with the project. Because Marge was never clear with the students about what was important, she wonders how she can assess what the students have learned. Although her students had fun, Marge realizes she missed the boat.

Marge asks you for help in making next year's lobster lab a more meaningful, standards-based learning experience. Using your own state standards and local curriculum as a guide, take the following steps:

1. Decide what standards Marge could use to focus the learning experience.

2. What enabling activities could she include in a unit built around the selected standards and the lobster lab kit?

3. What products and performances are required?

4. What criteria should she assess?

5. For each criterion, what performance description would spell out the performance all students should reach? Insert the description in the scoring guide (Figure A.1) under "GOT IT!"

6. Complete the scoring guide (Figure A.1) by describing each level of performance.

FIGURE A.1
Create a Lobster Lab Scoring Guide

Criteria	Lots of work to do	Not yet, but close	GOT IT! Met the standard!	WOW! Exceeded the standard!

Appendix B
Assessing Your Standards-Based Curriculum

Criteria	Just Getting Started	Not Yet	Got It!	Wow!
Standards	Curriculum and assessment are not directly linked to standards.	Some classroom curriculum and assessment decisions are related to standards, but all types of standards (impact, process, content, and rule or form) are not consistently considered.	Classroom curriculum decisions relate to identified standards, including consistent consideration of impact, process, content, and rule or form.	Standards form the basis of overall consideration of the curriculum, instruction, and assessment within and beyond the classroom.
Development and Selection of Activities and Resources	Activities and resources do not explicitly link to standards.	Activities and resources are linked to standards but do not logically support students' attainment of identified standards.	Activities and resources specifically support student progress toward standards.	Activities and resources are developed as part of a long-range plan to ensure student attainment of standards over time.
Products and Performances	Products and performances are selected with standards considered after the fact, if at all.	Products and performances are related to standards but do not supply necessary and sufficient evidence to assess attainment of the standards.	Products and performances are selected or designed to provide necessary and sufficient evidence of student progress toward specified standards.	Products and performances are planned to provide a cumulative record of evidence of students' attainment of standards over time.
Criteria	Criteria are not specified or are not necessary or sufficient to define the standard.	Criteria link directly to standards but generally do not provide necessary and sufficient information to define attainment of the standards.	Criteria link directly to standards and, as a whole, provide necessary and sufficient information to define student attainment of the standards.	Criteria address separate standards and define overall performance across standards.
Scoring Guides	Scoring guides include performance descriptions that do not directly link to standards and criteria.	Scoring guides include performance descriptions that link to standards and criteria, but are not grounded in exemplars of student work.	Scoring guides include specific performance descriptions at each level, as well as exemplars of student work.	Scoring guides are anchored in exemplars of student work with benchmarks at each level.

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Appendix C
Characteristics of Standards-Based Curriculum and Assessment

A successful standards-based curriculum and assessment program develops from the basic ideas listed under each of the following categories.

SCHOOL AND DISTRICT CURRICULUM

- Focuses on student attainment of identified standards.
- Provides access to knowledge and skills presented in the standards.
- Makes expectations explicit for student learning.
- Ensures that learning is comprehensive and includes concepts and skills from all disciplines within each level of the curriculum (preK–4, 5-8, and 9-12).
- Establishes continuous and developmental learning within each instructional block (preK–4, 5-8, and 9-12) and builds on learning by increasing complexity and sophistication to deepen conceptual understanding.

UNITS OF STUDY

- Focus on student attainment of standards from local curriculum built on state and national standards.
- Provide access to the knowledge and skills presented in the standards.
- Make expectations explicit for student learning.
- Use factual information to inform, support, and extend conceptual understanding.
- Provide opportunities for students to work as artists and writers, historians and social scientists, and scientists and mathematicians.
- Address important issues and questions raised by the broader community, the classroom learning community, individual students, and the teacher.
- Organize learning around major problems, issues, and themes.
- Make assessment ongoing and relevant to immediate learning.

LEARNING AND TEACHING ACTIVITIES

- Address one or more specific standards.
- Involve significant content and processes from the standards.
- Lead to products and performances that can be used to assess student learning.
- Engage students.
- Promote active learning.

PRODUCTS AND PERFORMANCES

- Demonstrate conceptual understanding, and content and skill acquisition.
- Promote self-understanding, self-monitoring, and self-assessment.
- Include opportunities for authentic audiences (teachers, other students, parents, community members, and experts in the field) to experience and critique results.
- Permit choices and combinations of oral, written, visual, and kinesthetic modes.

ASSESSMENTS

- Link directly to standards through clearly stated criteria.
- Describe the performances and products expected.
- Incorporate learning and teaching activities as well as products and performances.
- Use performance descriptions and student work as benchmarks.
- Provide students with information about their performance, accomplishments, and how to improve.
- Provide the feedback to allow instructional modifications for individuals, small groups, and the whole class.
- Offer information about student attainment of standards to students, parents, the community, and educators.
- Provide information for revising the curriculum.

Appendix D
Worksheets for Planning Units of Study

Standards-based units of study include the following components. You may develop these components in any order.

The Topic

What topic or essential question will be the focus of the unit? Will it be based on (1) student questions and interests (e.g., a study of the environment, of collections, or of the "Wild West), (2) community resources (e.g., the Winooski River, the Riverton Mall, or Bunker Hill), (3) local curriculum expectations (e.g., the Civil War, weights and measures, or The Scarlet Letter), or (4) a topic or theme suggested by the standards themselves (e.g., a study of probability, of systems, or of a particular era in history)?

Topic: _____

It may be useful and interesting to track the source of the topics or themes that you use throughout the year.

The Standards

What state standards are addressed and assessed through the unit of study? Identify and list any pertinent local and national standards.

1.

2.

3.

Local Curriculum Objectives (Optional)

List district objectives that relate to the standards selected.

1.

2.

3.

Learning and Teaching Activities

1. What culminating activity encompasses the identified standards and requires students to demonstrate their learning in relation to these standards?

2. What enabling activities ensure student progress toward the standards? Are these sufficient?

3. What introductory activities engage and motivate students?

4. What products and performances result from the learning and teaching activities?

Culminating Activity		
Standards	Enabling Activities	Products and Performances

Scoring Guides for Assessing Student Learning

- Through what means will students and others (e.g., parents) receive feedback on progress toward attainment of the standards?
- What criteria are necessary and sufficient to determine progress toward the standards?
- Are all necessary dimensions—categories of knowledge, skills, and habits of mind—clearly defined? Is the relationship to the identified standards direct and clear?
- What is the performance descriptor for each point on the scale for each criterion identified?

Scoring Guide				
Scale / Criteria				

Exemplars of Student Work

- What student products and performances exemplify desired performance in relation to standards and criteria? (Save these products and performances during implementation of the unit.) List exemplars.

Appendix E
Student Questionnaire

Use this questionnaire to gather information about students' questions and interests, and then use the information to plan standards-based units. Before asking students to complete the questionnaire, you might ask them to focus on themselves. You might say, "Begin thinking about yourself. What are your interests, problems, and needs? What questions do you have about your community? What questions do you have about your world?" Ask your students to jot down a few thoughts before giving them the questionnaire. You might want to model the types of questions you would like them to generate. For students in the primary grades, holding a class discussion in response to some of the open-ended questions on the questionnaire may be preferable to individual responses.

Student Questionnaire

This questionnaire is designed to gather information about your questions about you, your community, and your world. The information will help your teachers plan learning experiences that interest you. Please do not put your name on the questionnaire.

I am a _____ boy _____ girl. I am in _____ grade.

Please respond three times to each question. Use the back of the form if you need more room to write.

	Questions I Have		
	About Myself	About My Community	About the World
1. How can I...			
2. When will I...			
3. I wonder if...			
4. I wish I knew why...			
5. I wish I knew how...			
6. I wish I knew more about...			
7. I wish I knew when...			

Selected Resources

These resources related to standards-based curriculum development and assessment may be useful to you.

Beane, J., ed. (1995). *Toward a Coherent Curriculum.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Brandt, R., ed. (1992). *Readings from Educational Leadership: Performance Assessment.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Drake, S. (1993). *Planning Integrated Curriculum: The Call to Adventure.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Educators in Connecticut's Pomperaug Regional School District 15. (1996). *A Teacher's Guide to Performance-Based Learning and Assessment.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Erickson, H.L. (1995). *Stirring the Head, Heart, and Soul: Redefining Curriculum and Instruction.* Thousand Oaks, Calif.: Corwin Press.

Guild, P., and S. Garger. (1985). *Marching to Different Drummers.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Herman, J., P. Aschbacher, and L. Winters. (1992). *A Practical Guide to Alternative Assessment.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Hogan, K. (February 1995). Seminar on "Scoring Guides: The Complete Picture." At New York State K-8 Science Mentor Conference, Albany, N.Y.

Illinois State Board of Education. (1995). *Effective Scoring Rubrics: A Guide to Their Development and Use.* Springfield, Ill.: Author.

Jacobs, H.H., ed. (1989). *Interdisciplinary Curriculum: Design and Implementation.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Marzano, R.J. (1992). *A Different Kind of Classroom: Teaching with Dimensions of Learning.* Alexandria, Va.: Association for Supervision and Curriculum Development.

Marzano, R.J., D. Pickering, and J. McTighe. (1993). *Assessing Student Outcomes: Performance Assessment Using Dimensions of Learning.* Alexandria, Va.: Association for Supervision and Curriculum Development.

McDonald, J., E. Barton, S. Smith, D. Turner, and M. Finney. (1995). *Graduation By Exhibition: Assessing Genuine Achievement.* Alexandria, Va.: Association for Supervision and Curriculum Development.

McTighe, J. (speaker). (1988). *Developing Performance Assessment Tasks.* From ASCD Consortium on Authentic Assessment; videotape available from Maryland Assessment Consortium, 115 E. Church St., Frederick, Md. 21701. Phone: (301) 694-1337.

Mitchell, R., M. Willis, and the Chicago Teachers Union Quest Center. *Learning in Overdrive: Designing Curriculum, Instruction, and Assessment from Standards*. Golden, Colo.: North American Press.

Perrone, V., ed. (1991). *Expanding Student Assessment*. Alexandria, Va.: Association for Supervision and Curriculum Development.

References

Balas, C. (July 1995). "Is Jurassic Park Possible?" Unpublished unit produced using PIVIT software at University of Michigan summer workshop.

Beane, J. (1990). *A Middle School Curriculum: From Rhetoric to Reality*. Columbus, Ohio: The National Middle School Association.

Butler, K. (1984). *Learning and Teaching Style in Theory and Practice*. Maynard, Mass.: Gabriel Systems.

Callahan, J.S. and L.H. Clark. (1988). *Teaching in Middle and Secondary Schools: Planning for Competence*. New York: MacMillan.

Carbo, M. (1989). Seminar on "National Reading Styles." At the Association for Supervision and Curriculum Development's Annual Conference, Orlando, Fla.

Crawford, L., C. Griner, D. Winn, and E. Johnson. (June 1995). "Anger: A Thematic Unit." Unpublished unit created as part of the South Carolina Lighthouse Schools Project.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. New York: BasicBooks.

Hugley, B., M. Goldsmith, J. Carter, and S. Moreland. (June 1995). Under the Ocean. In The Ocean: From Surface to Sea Floor. Unpublished activity and unit created as part of the South Carolina Lighthouse Schools Project.

McCarthy, B. (1980). *The 4MAT System: Teaching to Learning Styles with Right/Left Mode Techniques*. Arlington Heights, Ill.: Excel.

National Council of Teachers of Mathematics. (1989). *Curriculum and Evaluation Standards for School Mathematics*. Reston, Va.

New Standards Project. (1995). *Performance Standards Draft 5.1*. Pittsburgh, Pa.

Sable, M. (May 1995). Seminar on "HELPS." At Vermont Schools in the National Alliance. South Burlington, Vt.

Stiggins, R. (1991). "Assessment Literacy." *Phi Delta Kappan* 72, 7: 534-539.

Vermont Department of Education. (Draft, Sept. 29, 1995). *Vermont Common Core Framework for Curriculum and Assessment*. Montpelier, Vt.: Author.

Wiggins, G. (1994). Seminar on "Integrated Curriculum and Performance Assessment." At the Association for Supervision and Curriculum Development's Professional Development Conference, Boston, Mass.

About ASCD

Founded in 1943, the Association for Supervision and Curriculum Development is a nonpartisan, nonprofit education association, with international headquarters in Alexandria, Virginia. ASCD's mission statement: *ASCD, a diverse, international community of educators, forging covenants in teaching and learning for the success of all learners.*

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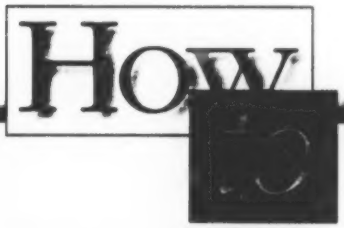
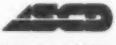


USE STANDARDS IN THE CLASSROOM

How can you bring standards to life and reality in your classroom? This guide is for teachers who seek a model and processes for designing standards-based units of study to use in their classrooms.

The proliferation of standards developed at the national and state levels turns the preparation of a meaningful classroom curriculum into a daunting task. Imagine that your district has recently adopted standards for student learning or your state has just published standards for your subject area. As you open the standards documents, you wonder "How do I make these standards part of my curriculum? How will I know if my students have attained the standards?"

The authors share their experiences with standards-based learning and offer practical examples of how to develop standards into units of study. The model and processes they describe in this book help readers in choosing and coordinating standards, topics, products and performances, assessment criteria, exemplars, and scoring guides.



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